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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/902,884	07/11/2001	James J. Cervera	08935-245001/ M-4962	9175

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EXAMINER
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CREPEAU, JONATHAN

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/902,884

Applicant(s)

CERVERA ET AL.

Examiner

Jonathan S. Crepeau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-11,14-16,22,24-26 and 28-49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4-9 and 28-38 is/are allowed.
- 6) ☒ Claim(s) 10,11,14-16,22,24-26 and 39-49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/29/04.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action addresses claims 1, 4-11, 14-16, 22, 24-26, and 28-49. Claims 1, 4-9, and 28-38 are allowed. However, claims 10, 11, 14-16, 22, 24-26 and 39-49 remain rejected under 35 USC §103 for the reasons of record. Claims 10, 11, 14-16, 22, and 24-26 remain rejected under 35 USC §112, first paragraph, the new ground of rejection of claim 10 having been necessitated by amendment. Accordingly, this action is made final.

### ***Claim Rejections - 35 USC § 112***

2. Claims 10, 11, 14-16, 22, and 24-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 10 and 11 have been amended to recite that the BET surface area is from at least about 5 m<sup>2</sup>/g to "less than about 14 m<sup>2</sup>/g." Applicants urge that the latter endpoint is supported by the disclosure of "13.9" on page 4 of the specification. However, the disclosure of "13.9" in the specification is not believed to be adequately envision or show possession of "less than about 14 m<sup>2</sup>/g." Accordingly, there is not believed to be sufficient support in the originally-filed application for the new claim language.

Claims 22 and 24 recite “greater than 40 microns.” The closest support is believed to be original claim 24, which recited that the particle size was “between about 40 and about 50 microns.” As the language “greater than 40” is different than the originally-used language “about 40,” the language is considered to constitute new matter. Applicants also urge that the disclosure of “40.1” on page 4 of the specification supports the claim language. However, the disclosure of “40.1” in the specification is not believed to be adequately envision or show possession of “greater than 40 microns.” Accordingly, there is not believed to be sufficient support in the originally-filed application for the claim language.

***Claim Rejections - 35 USC § 103***

3. Claims 10, 11, 14-16, 22, and 24-26 are rejected under 35 U.S.C. 103(a) as being obvious over Barsukov et al (U.S. Pre-Grant Publication No. 2001/0041293) in view of JP 10-284056.

Regarding claims 10 and 22, Barsukov et al. is directed to a primary alkaline battery comprising a cathode comprising manganese dioxide, expanded graphite, and non-expanded graphite (see abstract). The battery further comprises an anode, a separator, and an electrolyte (see paragraph 21). Regarding claims 14, 15, 25, and 26, the graphite mixture comprises 0.1-99.9 wt% expanded graphite (see claim 4 of the reference). Regarding claim 16, the non-expanded particles have an average particle size of less than 15 microns (see paragraph 45).

However, Barsukov et al. do not expressly teach that the expanded graphite has a BET surface area from at least about 5 m<sup>2</sup>/g to less than about 14 m<sup>2</sup>/g as recited in claims 10 and 11,

or that the expanded graphite has a  $D_{50}$  (i.e., average) particle size of greater than 40 microns and less than or equal to 100 microns (claims 22 and 24).

JP 10-248056 is directed to a nonaqueous electrolyte secondary battery. In the abstract, the reference teaches expanded graphite having a BET surface area of 5-50  $\text{m}^2/\text{g}$  and an average particle diameter of 1-50 microns.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the expanded graphite of JP '056 in the battery of Barsukov et al. In the abstract, JP '056 teaches that the battery using such is "excellent in cycle characteristic and is reduced in side reaction generated when the battery is preserved and used." Accordingly, because the artisan would be motivated to use the expanded graphite of JP '056 in the battery of Barsukov et al. Therefore, the ranges of BET surface area and  $D_{50}$  particle size would be rendered obvious to the skilled artisan.

4. Claims 39-49 are rejected under 35 U.S.C. 103(a) as being obvious over Barsukov et al (U.S. Pre-Grant Publication No. 2001/0041293) in view of Ishii et al (U.S. Pre-Grant Publication No. 2001/0033822).

Regarding claims 39 and 46, Barsukov et al. is directed to a primary alkaline battery comprising a cathode comprising manganese dioxide, expanded graphite, and non-expanded graphite (see abstract). The battery further comprises an anode, a separator, and an electrolyte

(see paragraph 21). Regarding claims 47, and 48, the graphite mixture comprises 0.1-99.9 wt% expanded graphite (see claim 4 of the reference). Regarding claim 49, the non-expanded particles have an average particle size of less than 15 microns (see paragraph 45). Regarding claim 44, the manganese dioxide/carbon ratio is 11.5/1 (i.e., the manganese is present in an amount of 92 wt%) (see paragraph 37).

Barsukov et al. do not expressly teach that the expanded graphite has a total pore volume of greater than about 0.1 mL/g, as recited in claims 39-41. Further, the reference does not expressly teach that the manganese dioxide comprises between 85 and 90 wt% of the cathode (claim 45).

However, the range recited in claim 45 would be rendered obvious because the artisan would be sufficiently skilled to manipulate the amount of manganese dioxide so as to affect the capacity of the battery. It has been held that the discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). Thus, the claimed range of 85-90 wt% manganese dioxide, although lower than the value expressly set forth by Barsukov, would still be rendered obvious by the reference.

Ishii et al. is directed to graphite particles that are suitable for a battery. In the abstract, the reference teaches that the graphite has a pore volume of 0.4-2.0 cc/g.

Therefore, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use the graphite of Ishii et al. in the battery of Barsukov et al. In the abstract, Ishii et al. teaches that the battery using such is "excellent in rapid charge-discharge characteristics, cycle characteristics,

etc.” Accordingly, because the artisan would be motivated to use the graphite of Ishii et al. as the expanded graphite of Barsukov et al. Therefore, the claimed range of pore volume would be rendered obvious to the skilled artisan.

### *Response to Arguments*

5. Applicant’s arguments filed July 14, 2004 have been fully considered but they are not persuasive. Applicants assert that a person of skill in the art would not be motivated to combine Tsuneaki (JP ‘065) with Barsukov, because “Barsukov already discloses certain expanded graphite particles, namely those of Nardi.” However, simply because Barsukov discloses the use of Nardi’s particles would not dissuade the artisan from using other expanded graphite particles in Barsukov. In other words, a teaching for Nardi is *not* a teaching away from JP ‘065. Further, there is a question as to whether Barsukov actually uses the particles of Nardi. Immediately after the discussion of Nardi, which is located in the “Background of the Invention” section, Barsukov discloses the following:

[0005] While the use of such expanded graphite additives resulted in impressive improvements in the service performance of electric chemical cells, further improvements in battery service performance within the bounds of economic feasibility are always desirable.

Thus, as Barsukov teaches that further improvements are desirable, the artisan would be motivated to look to other references (e.g., JP ‘065, Ishii et al.) for guidance regarding such improvements.

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Regarding the Ishii reference, Applicants assert that “[i]f one of ordinary skill in the art were to use the graphite particles of Ishii in the battery of Barsukov, there is no indication that the resulting battery would include expanded graphite.” To clarify, it is the Examiner’s position that the artisan would be motivated to incorporate the characteristics of the particles (rather than the particles *per se*) of Ishii into the existing particles of Barsukov. Such existing particles of Barsukov would include both expanded and non-expanded graphite. As such, the final product would include expanded graphite with the claimed characteristics.

***Allowable Subject Matter***

6. Claims 1, 4-9, and 28-38 are allowed.
7. The following is a statement of reasons for the indication of allowable subject matter:

The reasons for allowance of claims 1 and 28 were given in the previous Office action and remain applicable herein.



*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached at (571) 272-1414. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Primary Examiner  
Art Unit 1746  
September 21, 2004